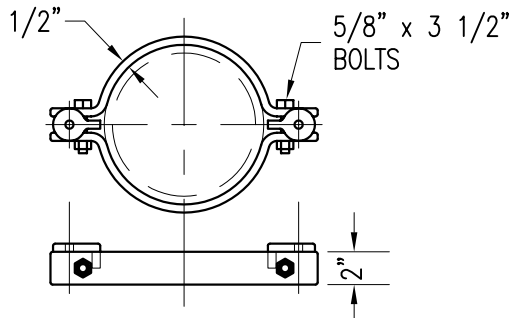
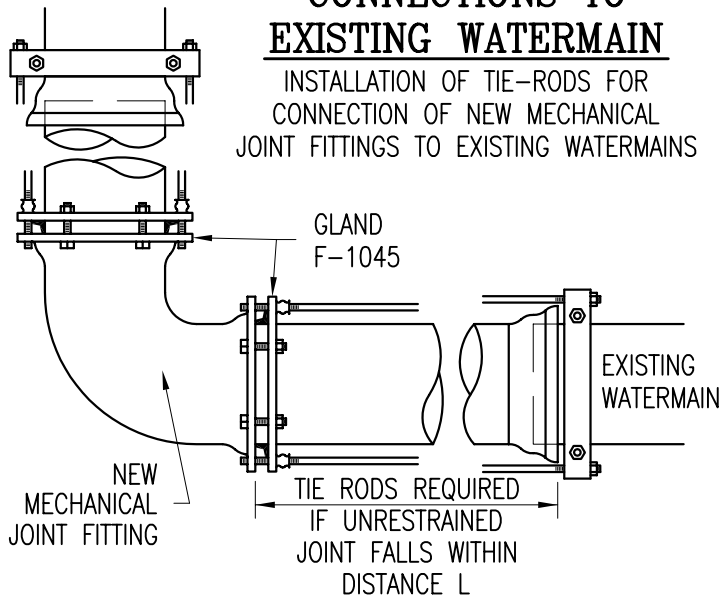


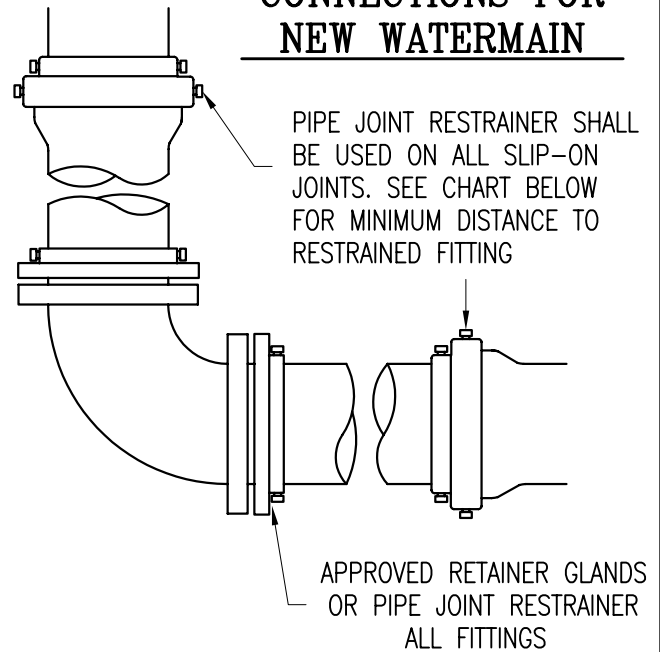
CONNECTIONS TO EXISTING WATERMAIN

INSTALLATION OF TIE-RODS FOR
CONNECTION OF NEW MECHANICAL
JOINT FITTINGS TO EXISTING WATERMAINS



SOCKET CLAMP FOR
PIPE FITTINGS

CONNECTIONS FOR NEW WATERMAIN



NUMBER OF 3/4" RODS REQUIRED

PIPE SIZE INCHES	12" AND LESS	14" AND 16"	18" AND 20"	24"
NUMBER OF RODS	2	4	6	8

MINIMUM DISTANCE TO CLOSEST UNRESTRAINED JOINT (L IN FEET)

TYPE OF FITTING	PIPE SIZE							
	6"	8"	10"	12"	14"	16"	18"	20"
11 1/4° BEND	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
22 1/2° BEND	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
45° BEND	18.0	18.0	18.0	18.0	19.0	21.4	23.8	26.0
90° BEND	19.6	19.6	24.0	28.2	32.4	36.6	40.8	44.8
TEE	18.0	18.0	18.0	18.0	20.0	25.0	36.0	40.0
PLUG	18.0	18.0	18.0	18.0	20.0	25.0	36.0	40.0

NOTES

1. RODS TO BE GALVANIZED.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

RESTRAINED JOINT DETAIL

Douglas C. Poring
RPO-WATER UTILITY

Paul W. Finner
DIRECTOR

SHT 1 OF 1 SHTS

DATE REVISED
6/15/07

PLATE NO.
6-05

REV.
C